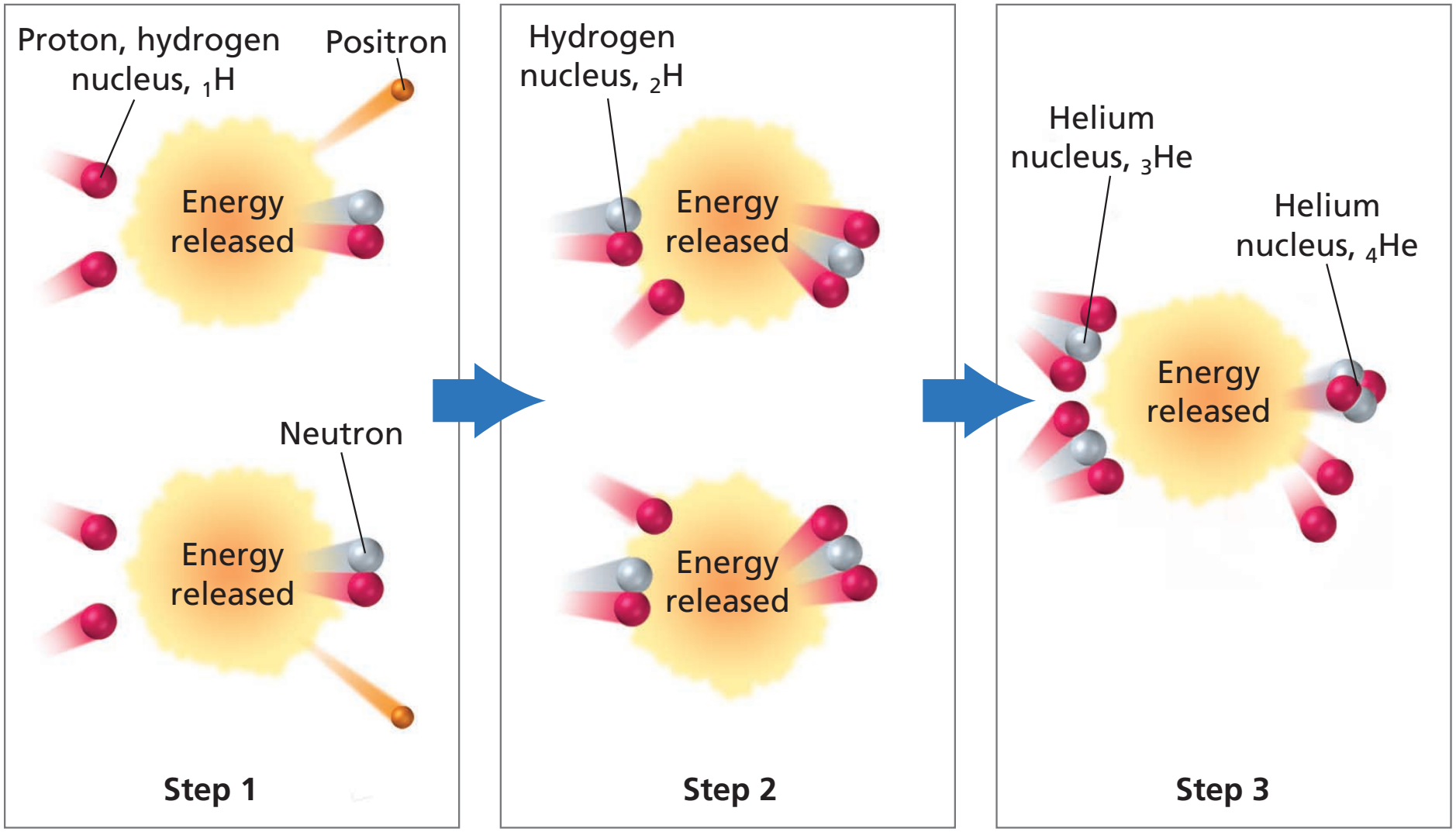
# Nuclear Fusion





Name _____ Class _____ Date _____

Transparency Worksheet

# Nuclear Fusion

**1.** As shown in Step 1, what does a hydrogen nucleus consist of?

**2.** When the two hydrogen nuclei fuse, what is the composition of the resulting nucleus? What particle has been changed?

**3.** In Step 2, what fuses with the nucleus produced at the end of Step 1? What does the resulting atom consist of?

**4.** What is the final product of nuclear fusion in the sun? Of what does this nucleus consist?

**5.** What is produced in great amounts throughout every step in the process of nuclear fusion?

form a moon, and a very large object might have completely destroyed Earth.
3. molten mantle material
4. Earth's gravitational pull

## 141 The Earth-Moon System

1. gravity
2. within Earth's interior
3. It would shift closer to the moon.
4. because the orbits of both Earth and the moon are ellipses, and both bodies "wobble" in their orbits as they move around the sun

## 142 Solar and Lunar Eclipses

1. No; the moon is too small to cast an umbra that would be large enough to encompass Earth entirely.
2. because the moon's orbital plane is at a slight angle to Earth's orbital plane, so the moon is usually above or below Earth's orbital plane rather than directly between Earth and the sun
3. the difference in the size of Earth and the moon, which are casting the shadows
4. No; you would see a partial solar eclipse because a total eclipse occurs only within the umbra.
5. An annular eclipse occurs when the moon is near or at its apogee. The sun is never entirely blocked, and its umbra does not reach Earth. Only a thin ring of sunlight is visible around the moon's outer edge.

## 143 Phases of the Moon

1. during the first and third quarters
2. the new moon phase
3. half a lunar cycle, or about 14 days
4. No; the same part of the moon's surface is always visible because one rotation of the moon around its axis takes the same amount of time as one revolution around Earth
5. sunlight reflecting off Earth's clouds and oceans

## 144 Causes of Tides

1. gravity
2. the gravitational pull of the moon on ocean water
3. The inertial force on the water opposite the moon is greater than the gravitational force of the moon, so the water bulges away from Earth in the opposite direction.
4. Low tides occur on the sides of Earth perpendicular to the gravitational force of the moon and the inertial bulge on the side away from the moon.

## 145 Lunar Landing Sites

1. 8
2. 3
3. three; Apollo 11 landed near Surveyor 5, and Apollo 12 and 14 landed near Surveyor 3.
4. There are no landing sites north of 40°N latitude, south of 50°S latitude, or between 20°S and 40°S latitude.
5. between 5°N and 5°S of the lunar equator
6. maria and crater
7. Sample answer: none, because the radio waves used for communication would be blocked by the moon

## 146 Nuclear Fusion

1. a single proton
2. The resulting nucleus has one proton and one neutron. During fusion, one proton has been changed into one neutron.
3. In Step 2, another proton fuses with the proton-neutron pair. This atom consists of 2 protons and one neutron.
4. a helium nucleus; It consists of two protons and two neutrons.
5. large amounts of energy

## 147 The Sun's Interior

1. in the core
2. immense energy and pressure, as well as temperature as high as 15 million degrees Celsius
3. Energy moves from the core through all the layers of the sun until it reaches the corona and from there it radiates into space.
4. Energy moves outward in the form of electromagnetic waves, or radiation.
5. In the convective zone, hot gases carry energy to the sun's surface.

## 148 SXT Composite Image of the Sun

1. the active region numbered 7995